

AMENDMENTS TO THE CLAIMS

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remain(s) under examination in the application is presented below. The claims are presented in ascending order and each includes one status identifier. Those claims not cancelled or withdrawn but amended by the current amendment utilize the following notations for amendment: 1. deleted matter is shown by strikethrough for six or more characters and double brackets for five or less characters; and 2. added matter is shown by underlining.

1-13 (Cancelled)

14. (Currently Amended) A headrest controller for moving a part of a headrest of a vehicle seat toward a head of a passenger comprising:

a headrest including a front part and a rear part;

a headrest driving mechanism disposed between the front part and the rear part for moving the front part with respect to the rear part;

a head position detecting unit including a first sensor for detecting a distance between the front part of the headrest and an object positioned adjacent the headrest, and a second sensor for detecting contact between the object and the front part of the headrest, the first and second sensors being operatively coupled with the front part of the headrest;

a control circuit operatively coupled with said headrest driving mechanism; and

a timer in communication with the control circuit for measuring a stop time when the front part of the headrest is in a near position or in an abutting position, the near position being based on a detection signal from the first sensor and being defined as where a distance between the front part and the object is equal to or smaller than a predetermined value, the abutting position being based on a detection signal from the second sensor and being defined as where the front part of the headrest contacts the object,

wherein the headrest driving mechanism includes link members for moving the front part of the headrest along a diagonally forward and upward path with respect to the rear part of the headrest, the link members being rotatably connected at intermediate portions thereof, one of the link members including an upper end rotatably mounted to an upper region of the rear part of the headrest and a lower end rotatably mounted to a lower region of the front part of the headrest, the other of the link members including an upper end slideably and rotatably connected to an upper

region of the front part of the head rest and a lower end slideably and rotatably coupled to a lower region of the rear part of the headrest, and

wherein the control circuit is adapted to alter movement of the headrest driving mechanism to stop the front part of the headrest at any point along the diagonally forward and upward path corresponding to the abutting position or the near position, and wherein the control circuit is adapted to return the front part of the headrest to an initial position by operating the headrest driving mechanism after the stop time measured by the timer reaches a predetermined time.

15. (Original) A headrest controller as in claim 14, wherein the first sensor is a plurality of sensors.

16. (Original) A headrest controller as in claim 14, wherein the first sensor is a capacitive type sensor.

17. (Original) A headrest controller as in claim 14, wherein the second sensor is a plurality of sensors.

18. (Original) A headrest controller as in claim 14, wherein the second sensor is a contact type sensor.

19. (Original) A headrest controller as in claim 14, wherein the head position detecting unit is provided in the front part of the headrest.

20. (Currently Amended) A headrest controller comprising:

a crash detecting sensor for predicting or detecting a crash to a rear of a vehicle;

a headrest including a front part and a rear part;

a headrest driving mechanism disposed between the front part and the rear part of the headrest for moving the front part toward a head of a passenger to reduce the distance between the front part of the headrest and the head;

a head position detecting unit including a first sensor to detect a distance between the head and the front part of the headrest, and a second sensor for detecting contact between the head and the front part of the headrest, the first and the second sensors being operatively coupled with the front part of the headrest;

a control circuit for operating the headrest driving mechanism when the crash detecting sensor outputs a detection signal and altering movement of the headrest driving mechanism when the head position detecting unit outputs a detection signal; and

a timer for measuring a stop time when the front part of the headrest is in an operating position, the timer being in communication with the control circuit,

wherein the control circuit is adapted to stop the front part of the headrest when the predetermined state of approach or state of contact is detected by either of the first and second sensors, the control circuit being further adapted to operate the headrest driving mechanism to return the front part of the headrest from the operating position to an initial position after the stop time measured by the timer reaches a predetermined time, and

wherein the headrest driving mechanism includes link members for moving the front part of the headrest diagonally forward and upward with respect to the rear part of the headrest, the link members being rotatably connected at intermediate portions thereof, one of the link members including an upper end rotatably mounted to an upper region of the rear part of the headrest and a lower end rotatably mounted to a lower region of the front part of the headrest, the other of the link members including an upper end slideably and rotatably connected to an upper

region of the front part of the head rest and a lower end slideably and rotatably coupled to a lower region of the rear part of the headrest.

21. (Cancelled)

22. (Original) A headrest controller as in claim 20, wherein the first sensor includes a plurality of sensors.

23. (Original) A headrest controller as in claim 20, wherein the first sensor is a capacitive type sensor.

24. (Original) A headrest controller as in claim 20, wherein the second sensor includes a plurality of sensors.

25. (Original) A headrest controller as in claim 20, wherein first and second sensor each have a detection output signal, further wherein the control circuit stops the headrest based on the output detection signal of the sensor that occurs earlier in time.

26. (Currently Amended) A headrest device comprising:

a front portion and a back portion;

a headrest driving mechanism disposed between the front portion and the back portion for moving the front portion with respect to the back portion;

a head position detecting unit including a first sensor to detect a distance between an object moving towards the front portion and the front portion, and a second sensor for detecting contact between the object and the front portion;

a control circuit to alter movement of the front portion based on a detection signal from the head position detecting unit; and

a timer for measuring a stop time when the front part of the headrest is in an operating position, the timer being in communication with the control circuit,

wherein the control circuit is adapted to alter movement of the headrest driving mechanism to stop the front part of the headrest at the operating position, the operating position being based on a detection signal from the head position detection unit, and wherein the control circuit is adapted to return the front part of the headrest to an initial position by operating the headrest driving mechanism after the stop time measured by the timer reaches a predetermined time, and

wherein the headrest driving mechanism includes link members for moving the front part of the headrest diagonally forward and upward with respect to the rear part of the headrest, the link members being rotatably connected at intermediate portions thereof, one of the link members including an upper end rotatably mounted to an upper region of the rear part of the headrest and a lower end rotatably mounted to a lower region of the front part of the headrest, the other of the link members including an upper end slideably and rotatably connected to an upper region of the front part of the head rest and a lower end slideably and rotatably coupled to a lower region of the rear part of the headrest.

27. (Original) A headrest device as in claim 26, wherein the first sensor is a plurality of sensors.

28. (Original) A headrest device as in claim 26, wherein the first sensor is a capacitive type sensor.

29. (Original) A headrest device as in claim 26, wherein the second sensor is a plurality of sensors.

30. (Original) A headrest device as in claim 26, wherein the second sensor is a contact type sensor.

31. (Original) A headrest device as in claim 26, wherein the head position detecting unit is positioned in the front portion.

32. (Cancelled)

33. (Cancelled)

34. (Previously Presented) A headrest controller as in claim 14 wherein the predetermined time is in a range of 1 to 15 seconds.

35. (Previously Presented) A headrest controller as in claim 20 wherein the predetermined time is in a range of 1 to 15 seconds.

36. (Previously Presented) A headrest device as in claim 26 wherein the predetermined time is in a range of 1 to 15 seconds.